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In response to your letter received on 9 June, the following sets out the plan for building additional capacity and redundancy for the containment of oil from the Deepwater Horizon oil spill. Elements of this plan have been worked over the past several weeks. Any action will be taken pursuant to procedures approved by the Unified Area Command.

This outline plan was verbally reviewed with Secretary Chu and Secretary Salazar on 8 June. No objections were raised.

The plan is described in two phases:

- a temporary riser system which has increasing capacity over the next several weeks, and;
- a permanent riser system which has increased capacity and redundancy, as well as being more resilient to any possible hurricanes. Work began on this solution on 13 May.

The plan is summarised in the attached chart and is outlined as follows.

Temporary Riser System

There are three elements to this system:

Element 1

	Capacity	Operational
Discoverer Enterprise / LMRP Cap	15 - 18,000 barrels of oil per day	Now

The system, which involves a Cap on top of the Lower Marine Riser Package capturing the oil and flowing it back to the Discoverer Enterprise, is currently deployed and has commenced operations. In the last 24 hour period, the amount captured had increased to an estimated 15,006 barrels of oil.

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The plan is to continue to optimise the system. Ultimately the system hydraulics or the capacity of the Discoverer Enterprise test equipment will be the limitation.

Element 2

	Capacity	Operational
Q4000 / Choke Line	5 - 10,000 barrels of oil per day	Mid June

This option involves the flow of hydrocarbons from the Choke Line on the Deepwater Horizon BOP, through the subsea manifold used for the Top Kill operation, to newly installed flow test equipment on the Q4000. The hydrocarbons will be flared.

The objective of this option is to capture any excess oil that the LMRP Cap / Discoverer Enterprise system cannot contain – as such it will be run in parallel with Element 1. A secondary benefit is that it will also offer some limited redundancy for any unplanned events such as plant shutdowns.

Element 3

	Capacity	Operational
Clear Leader / Kill Line	5 - 10,000 barrels of oil per day	Mid July

This option involves the flow of hydrocarbons from the Kill Line on the Deepwater Horizon BOP, through the subsea manifold used for the Top Kill operation, to the Clear Leader drillship. The oil will be stored and ultimately offloaded, while the gas will be flared.

The objective of this option is to capture any further excess oil that the Enterprise and Q4000 systems cannot contain – as such it can be run in parallel with Elements 1 and 2. A secondary benefit is that it will also offer some limited redundancy for any unplanned events such as plant shutdowns.

In summary:

- the combination of Elements 1 and 2 by **Mid June** results in a capacity of **20 – 28,000 barrels of oil per day**;
- the combination of Elements 1, 2 and 3 by **mid July** results in a capacity of **25 – 38,000 barrels of oil per day**.

Permanent Riser System

	Capacity	Operational
<u>Element 1</u> Permanent Riser 1 / Toisa Pisces / Loch Rannoch	20 - 25,000 barrels of oil per day	End June
<u>Element 2</u> Permanent Riser 2 / Helix Producer / Tanker No. 2	40 - 50,000 barrels of oil per day (Phase I / II combined)	Mid July

This option involves the installation of two separate permanent riser systems connected to a newly installed subsea manifold. In the event of a hurricane, this system results in less time off station compared with the Temporary Riser System.

Two floating production vessels are needed, namely the Toisa Pisces and the Helix Producer. The Toisa Pisces was contracted on 21 May and the Helix Producer on 8 June.

Construction on Riser No.1 began 15 on May and construction began on Riser No.2 on 7 June. Riser No.1 installation will begin on 15 June. The manifold is complete and will be installed on 12 June.

The Loch Rannoch was mobilised from the North Sea on 27 May and a second tanker is currently being procured. The arrival of these vessels is not currently on the critical path.

Element 1 will be in place by the end of June and Element 2 will be in place mid July.

The combination of Phase I and II results in a capacity of **40 – 50,000 barrels of oil per day.**

In addition – the Discoverer Enterprise would remain in field and could provide additional capacity (**15 – 18,000 barrels of oil per day**).

In summary, we believe this plan is responsive to your order. However, a number of challenges are present, and we cannot assure compliance with your instruction that “complete collection rates” be achieved throughout. There are four points to be made.

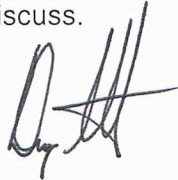
First, there will be some interruption to current containment as we implement these new options. We will, of course, do everything possible to minimise such interruptions. Any such actions will be subject to procedures that will be submitted for approval by the UAC.

Second, achieving complete collection will depend on the effectiveness of the sealing mechanism in future cap designs on the LMRP.

Third, whether the system has appropriate redundancies to maintain complete collection will also depend on the actual flow rate. The systems outlined here are designed based on the current best independent assessment of flow from the Flow Rate Technical Group. We will continue to adapt our plans as more is learned about the flow rate from the well.

Four, in the event that it is necessary to switch between primary and backup systems, there will inevitably be periods of less than complete collection.

If there are any areas where you believe further action is required to fulfil your instruction, please let us know and we can set up a session to discuss.

A handwritten signature in black ink, appearing to read 'Doug Suttles', with a stylized, cursive script.

Doug Suttles

cc: Admiral Allen
Secretary Chu
Secretary Salazar

Containment Options – Timings and Capacities

Permanent Riser

